

## CLAIMS

What is claimed is:

1. A beam-index-type cathode ray tube, comprising:
  - a vacuum tube defined by a panel and a funnel having a neck;
  - a phosphor screen provided with index stripes to provide color selection, the phosphor screen being formed on an inner surface of said panel;
  - an electron gun mounted inside said neck to emit electron beams toward said phosphor screen;
  - a deflection yoke mounted around said neck;
  - a transparent light reception window provided on said funnel;
  - a detector to generate an index electric signal by condensing index light generated from said index stripes through said light reception window; and
  - an index circuit to transmit a signal obtained by synchronizing said index signal with a color signal,wherein when a diagonal length on an outer surface of said funnel is "d", said light reception window is provided at a location within a range of 0.1-0.3d from a corner of a seal edge of said funnel.
2. The beam-index-type cathode ray tube according to claim 1, further comprising three additional light reception windows such that a light reception window is provided on each of four connecting lines that respectively connect corners of said funnel to said neck.
3. The beam-index-type cathode ray tube according to claim 2, wherein said light reception windows are provided at a location within a range defined by rotating said connecting lines by 0-30° clockwise or counterclockwise.
4. A beam-index-type cathode ray tube, comprising:
  - a vacuum tube defined by a panel and plural funnels each having a neck;
  - a phosphor screen provided with index stripes to provide color selection, the phosphor screen being formed on an inner surface of said panel;
  - electron guns respectively mounted inside each of said necks to emit electron beams toward said phosphor screen;
  - deflection yokes respectively mounted around each of said necks;

light reception windows respectively provided on each of said funnels;

detectors respectively provided at each of said light reception windows to generate index signals by condensing index light generated from said index stripes through the light reception windows; and

an index circuit to transmit signals obtained by synchronizing said index signals with color signals,

wherein when a diagonal length on an outer surface of each of said funnels is "d", each of said light reception windows is provided on a location within a range of 0.1-0.3d from a corner of a seal edge of each said funnel.

5. The beam-index-type cathode ray tube according to claim 4, wherein said phosphor screen is divided into at least two regions, and at least two of said funnels corresponding to the divided regions are provided.

6. The beam-index-type cathode ray tube according to claim 4, wherein said light reception windows are respectively provided on each of four connecting lines that respectively connect corners of said corresponding funnel to said corresponding neck.

7. The beam-index-type cathode ray tube according to claim 6, wherein each of said light reception windows are provided in a range defined by rotating said connecting lines by 0-30° clockwise or counterclockwise.

8. The beam-index-type cathode ray tube according to claim 1, wherein said diagonal length "d" is 720mm and a deflection angle of said electron beams is 110 degrees.

9. The beam-index-type cathode ray tube according to claim 1, wherein said light reception window is provided at a location within a range of 0.14-0.21d from the corner of said seal edge of said funnel, said diagonal length "d" is 720mm and a deflection angle of said electron beams is 110°.

10. The beam-index-type cathode ray tube according to claim 1, wherein said light reception window is provided at a location within a range of 0.21-0.28d from the corner of said seal edge of said funnel, said diagonal length "d" is 720mm and a deflection angle of said electron beams is 120°.

11. A beam-index-type ray tube, comprising:  
a vacuum tube defined by a panel and a funnel having a neck;  
a phosphor screen provided with index stripes to provide color selection, the phosphor screen being formed on an inner surface of said vacuum tube;  
an electron gun mounted inside the neck to emit electron beams to the phosphor screen;  
a deflection yoke mounted around the neck;  
a transparent light reception window provided on the funnel;  
a detector to generate an index electric signal by condensing index light generated from the index stripes through the light reception window; and  
an index circuit to transmit a signal obtained by synchronizing the index signal with a color signal;  
wherein said light reception window and said detector are mounted on a location within a range where a periphery index light intensity is detected to be higher than a central index light intensity.

12. The beam-index-type cathode ray tube according to claim 11, wherein said light reception window and said detector are positioned along a diagonal of the outer surface of said funnel within a range of 0.1-0.3d from a corner of a seal edge of said funnel.

13. The beam-index-type cathode ray tube according to claim 11, wherein said light reception window and said detector are positioned within a range defined by rotating a diagonal of the outer surface of said funnel by 0-30° and within a range of 0.1-0.3d from a corner of a seal edge of said funnel.

14. The beam-index-type cathode ray tube according to claim 11, wherein the vacuum comprises a plurality of funnels each having a neck, the beam-index-type cathode ray tube further comprising:

at least one additional electron gun mounted in a corresponding one of the necks;  
at least one additional deflection yoke mounted around a corresponding one of the necks;

at least one additional transparent light reception window provided on a corresponding one of the necks; and

at least one additional detector to generate an index electric signal by condensing index light generated from a corresponding one of the additional transparent light reception windows, wherein each said light reception window and corresponding detector is positioned along a diagonal of the outer surface of said corresponding funnel within a range of  $0.1-0.3d$  from a corner of a seal edge of said corresponding funnel.

15. The beam-index-type cathode ray tube according to claim 11, wherein the vacuum comprises a plurality of funnels each having a neck, the beam-index-type cathode ray tube further comprising:

at least one additional electron gun mounted in a corresponding one of the necks;  
at least one additional deflection yoke mounted around a corresponding one of the necks;

at least one additional transparent light reception window provided on a corresponding one of the necks; and

at least one additional detector to generate an index electric signal by condensing index light generated from a corresponding one of the additional transparent light reception windows,

wherein each said light reception window and corresponding detector is within a range defined by rotating a diagonal of the outer surface of said corresponding funnel by  $0-30^\circ$  and within a range of  $0.1-0.3d$  from a corner of a seal edge of said corresponding funnel.